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# Apiaceae of Northcentral New Mexico

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**Apiaceae of Northcentral New Mexico**

**Parsley Family**

Asha Hamaker

Biology 3343

Southern Methodist University

June 30th, 2018

## Introduction to the Parsley Family:

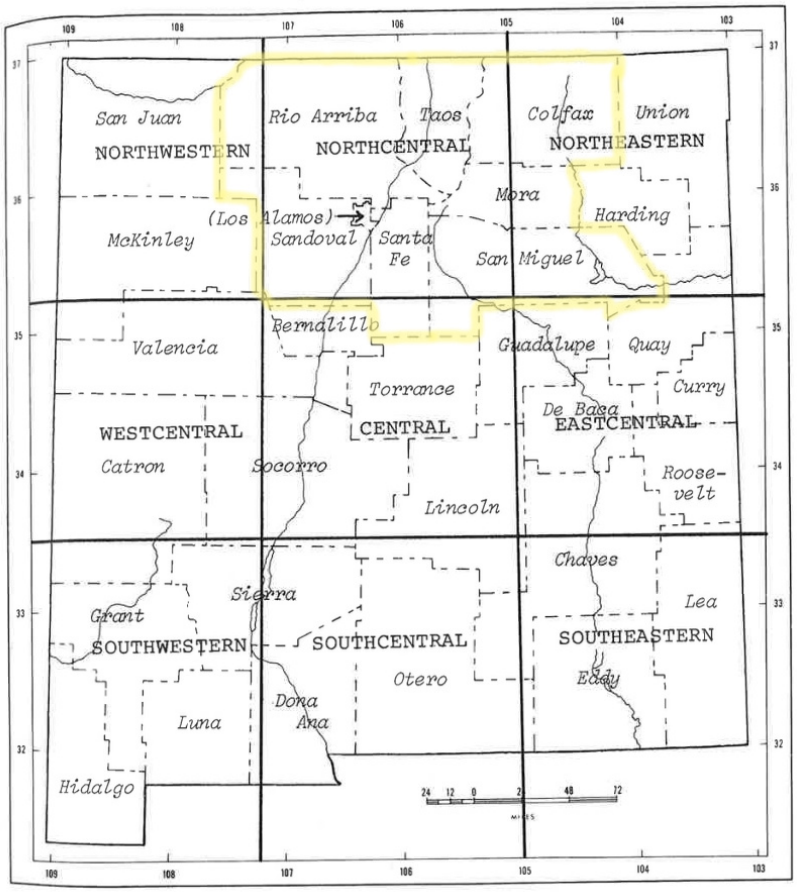
The Apiaceae, previously known as the Umbelliferae, is commonly referred to as the parsley family. This family has between 300 and 400 species that live in a wide range of habitats. However, the Apiaceae family is mostly found in the tropical mountains.

The parsley family is used for many different things, the most well known being cooking. Some species are used as spices, such as anethum (dill), coriander (coriander, cilantro), and cuminium (cumin). However some species of the parsley family are poisonous. The water hemlock and poison hemlock are examples of very poisonous plants. These plants are toxic because it keeps them from being eaten by a herbivore. The black swallowtail caterpillars are the only insects that are resistant to the toxin in the water and poison hemlock.

Generally the species in the parsley family last yearly or longer. They have leaves attached to the stem. Each leaf is opposite each other and have three or more leafs at each level with a tight cluster at the base of the plant. They all have a stalk that joins a leaf to a stem. The leaf blades can be simple or compound. The shape of the leaf blades can either be toothed, lobed, or entire. The parsley family has five petals, five equal or unequal stamens, and a calyx tube.

## Introduction to the Region:

New Mexico has a total area 121,666 square miles. Within these miles the elevation ranges from 2,876-13,160 feet. Two extensions of the Rocky Mountains to the state are San Juan and Jamez from the west and the Sangre de Cristo Range from the east. Glaciation occurred during the Pleistocene epoch in the Northcentral part of the state.




The climate has six life zones, however, the tropical zone is not represented. The mean temperature in New Mexico is 53 degrees Fahrenheit. However, the temperature drops three degrees Fahrenheit for every 1,000-foot increase in altitude. The average rainfall is fifteen inches, resulting in a 100-200 day growing season. There are two periods of volcanic activity that have caused the mountain complexity of New Mexico. The first period is when the east and west mountain ranges had granite and quartz and the

northern part of the state was underwater, this formed sedimentary rock ranging up to 8,000 feet thick. The second period occurred at the end of the Mesozoic era, also known as the Laramide Revolution, which created north and south mountain ranges along the fault zones.

In New Mexico the complexity of the floras is due to climatic, geological, and topographic variety. However, long-term effects are caused by human habitation. For instance, the most popular long-term disturbances are from removing timber, letting animals overgraze, and extensive mining. All causes result in the dislocation of species and establishment of invader species. For instance, native plants get overthrown by the most invader plants, which originate from Europe and Asia. These invader plants tend to be more competitive than the established plant.

In the eastern plains the grama grasses are most commonly found and the forbs are the second most common. There are four different floristic zones: pinyon-juniper, mixed conifer, spruce-fir, and alpine tundra. The pinyon-juniper trees are below 7,000 feet and has some shrubs mixed in with the numerous pinyon and juniper trees. The conifer zone is between 7,000 and 9,000 feet and includes some pandarosa pine trees with the conifer trees. The spruce-fir zone is between 9,000 and 12,000 feet and includes many different types of spruce and fir trees. The alpine zone is between 12,000 and 13,152 feet. This zone's trees gradually thin out resulting in short shrubs and plants.

## Materials and Methods:

I began by selecting Apiaceae as my plant family. Then, I used Robert DeWitt Ivey 2008 *Flowering Plants of New Mexico* book to determine if the plant family's species was native within Taos and its surrounding counties.[3] After finding numerous species within Taos I decided to pick the Apiaceae (parsley family). The topography, glaciation, climate, and vegetation of the terrain in Taos are found in William C. Martin and Charles R. Hutchin 1980 *A Flora of New Mexico I.*[1] The Internet was used to help fill out the information on the genus and species. There are three other resources used to help find information. These sources are William C. Martin and Charles R. Hutchin 1980 *A Flora of New Mexico II,*[2] Kelly W. Allred and Robert DeWitt Ivey 2012 *Flora Neomexicana III: Identification Manual*,[4] and Daniel E. Moerman 1986 *Medicinal Plants of Native America.*[78]

***Angelica***

**Common name:** Wild Celery
**Color:** white, pink, purple.[2]
**Habitat:** Perennial or biennial.[11]
**Leaves:** pinnate to ternate-pinnate, leaflets of 2-4 pairs, calyx are minute or obsolete.[2]
**Fruit:** Oval or orbicular shaped.[2]
**Flowers:** Umbels loosen, Petioles of cauline leaves inflate at the base. [2]

**Comments:** The *Angelica* genus has over 50 species that are grow in swampy areas.[13] They grow between 1-3 m tall.[14]

**Medical/Culinary Application**: According to WebMD *Angelica* is used as one of five herbs to settle an upset stomach. *Angelica* can also be directly put on the skin to reduce nerve and arthritis pain. [15] Species of *Angelica* have been used extensively in the Native American tribes. The Costanoan Tribe used *Angelica* as an hearted root juice used to rub on sore, a root burned with the smell used to reduce headaches, and burned twigs used to rub on sore joints.[17] The Creek tribe used the *Angelica* root to reduce belly aches and back pain, given to children in replace of vermifuge (used to destroy parasitic worms), and used to distressed

people.[18] The Mendocino tribe used the root to reduce headaches and nightmares, swallowed for colds and fevers, smashed to put on legs to prevent rattlesnake bites, and the root juice was used for sore eyes.[19] The Paiute tribe chewed the dried root to help heal a sore throat, the roots were boiled and applied to sores, [20] and were applied to cuts.[21] The Shoshone tribe used the plant to mask the original flavor of the medicine. The root was used to help coughs by adding some into whiskey, reduced colds, was applied to swollen areas, was inhaled to distress horses, and was used to wash venereal diseases.[20] The Tewa tribe drank the root with water to cure stomachaches and vomiting and the root was chewed to reduce diarrhea.[22] The Washoe tribe used the *Angelica* plant to camouflage the flavor of the original medicine. The tribe chewed the dried root to help with sore throats and coughs. The dried root was eaten to cure influenza and bronchitis.[20] The Yana tribe used the roots to cure colds, diarrhea and headaches.[23] There is no culinary application.

**Key:**

Involucel present, bracts are larger than the flowers [4]……. ***A. grayi***

## *Angelica grayi*


**Common Name**: Gray's Angelica
**Color**: White flowers.[4]
**Habitat**: Meadows, Woodlands, Scree slopes.[5]
**Leaves**: leaflets are in pairs opposite each other arranged on either side of the stem; leaflets are 1-5cm long- can either be rounded or toothed (cutting edge); some leafs have a lanceolate or linear lanceolate shape [4].
**Flowers**: stem gets up to 60 cm tall, [2] when leaves that grow on the upper part of the stem the petiole inflates at the base. Umbels have a flat top, the pedicel is 2-6 mm tall. [5]

**Comments**: Only found in the Taos region.[2] Furocoumarins is found in the plants tissue and makes the skin sensitive to light.[10]

**Medical/Culinary Application**: No medical or culinary application

## *Cicuta*

**Common Name**: Water Hemlock.[24]
**Color:** green or white flowers.[24,25,26]
**Habitat:** Perennial plants.[24,25,26]
**Leaves**: The leaves are pinnate , the leaflets are lanceolate.[24,25,26]
**Fruit:** circular shaped.[24,25,26]
**Flowers:** Umbel flower shape, the stem of the plant is smooth and hollow, and thick rootstocks (underground roots). [24,25,26]

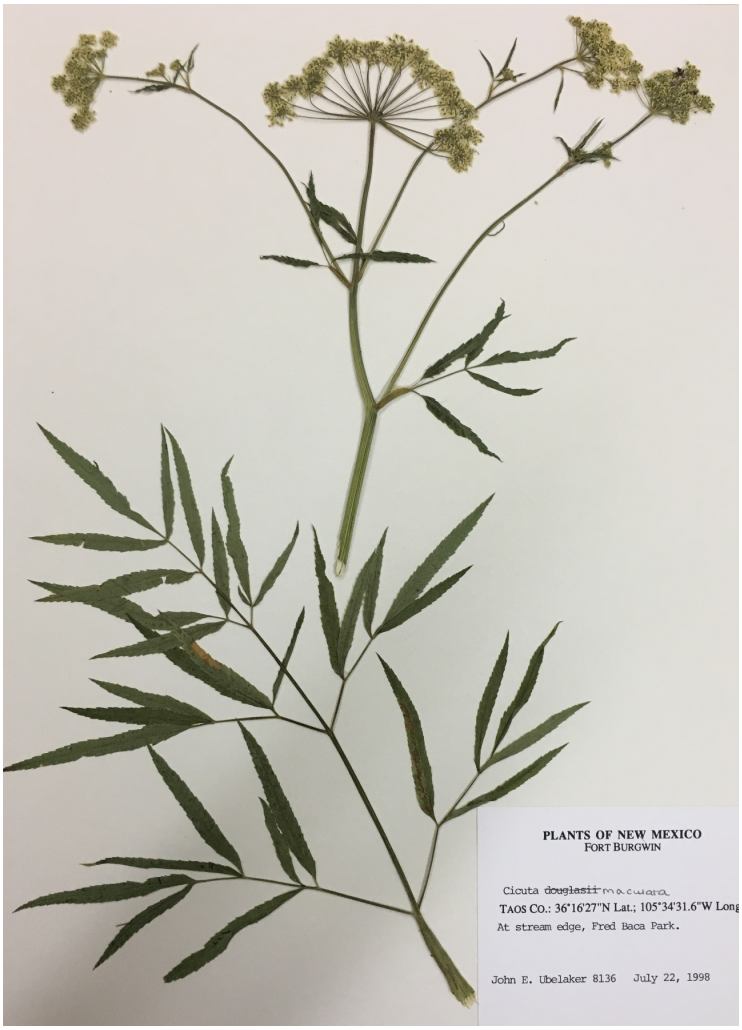
**Comments:** The *Cicuta* genus has 4 species that grow in wet meadows, streambanks, and other marshy areas. They grow around 2.5m tall.[24,25,26]

**Key:**

All parts of the plant are extremely poisonous if ingested or placed on an open wound due to the cicutoxin (oily yellow liquid in rootstock)[24,25,26]

….***C. maculata***

***Cicuta maculata***




**Common Name:** Spotted Water Hemlock
**Color:** green or white flowers
**Habitat:** Biennial or Perennial.[30]
**Leaves:** pinnate leaflets (feather like leafs rising from the same point on the stem), the leaflets are lanceolate and are sharply toothed.[4]
**Flowers:** chambered roots, Small petals cluster together to for an Umbel (umbrella) shape.[4]

**Comments:** Commonly found by streams and ditches, but mostly in the mountains.[4]

**Medical/ Culinary Application:** The Cherokee tribe ate the *Cicuta Maculata* root to help women become sterile, too decrease the dizziness of a person, and the corn was soaked in the root to eliminate insects.[28] The Iroquois tribe smashed the roots to

reduce runny noses. The plant is used to prevent diseases and minimize bruises.[29]

There are no culinary uses found.

## *Conium*

**Common name:** poison hemlock.[31]
**Color:** white.[2]
**Habitat:** Biennial.[31]
**Leaves:** pinnate**,** calyx teeth obsolete.[2]
**Fruit:** egg shaped.[2]
**Flowers:** umbels compound.[2]

**Comments:** none

**Medical/Culinary Application**: No medical or culinary uses are found.

**Key:**
Plant found in mountains and other wet areas[4]**….** ***C. maculatum***

*Conium maculatum*

**Common name:** Hemlock Poison
**Color:** white flowers.[35]
**Habitat:** perennial or biennial.[35]
**Leaves:** leafs are low on the petiole, the upper leafs connect directly on the stem (sessile).[2]
**Fruit:** 2-3mm long.[2]
**Flowers:** Stems is hallow (shown by purple spots)[35], and gets up to 3m tall.[2] The plant has a taproot that is white[35], and generally flowers between June and August.[2]

**Comments:** This plant is found along stream banks, near ditches, and along the roadside.[33]

**Medical/Culinary Application**: The Klallam tribe used the root as a rub put on ladies bodies to get men's attention.[32]

**Key:**
The *Conium maculatum* roots are very poisonous.[32]

## *Cymopterus*

**Common name:** Springparsley.[37]
**Color:** yellow white purple flowers.[36]
**Habitat:** perennial.[37]
**Leaves:** Leaves are located at ground level.[36]
**Flowers:** This plant does not have a stem and is taprooted.[36]

**Comments:** The location varies by species.

**Medical/Culinary Application**: The Paiute tribe used the roots to kill bugs.[20]

**Key:**

Wings of the fruit are not enlarged at the base [4]**…** ***C. bulbosus***

Plant has yellow flowers [4]**….** ***C. glomeratus***

Rays 1-2 cm long, fruit 3-5 mm long [4]**….** ***C. lemmonii***

*Cymopterus bulbosus*

**Common name:** bulbous springparsley
**Color:** purple flowers
**Habitat:** Perennial[39]
**Leaves:** short lateral veins[4]
**Fruit:** The mature stalk of the fruit exceeds the leaves.[4]
**Flowers:** The pedicel is short but still produces fruit**.**[4]

**Comments:** Found in the dry hills and plains.[4]

**Medical/Culinary Application**: The root can be eaten. Many people use the dried leaves as celery flavoring.[39] The Navaho tribe used the plant as "life medicine".[42]

*Cymopterus glomeratus van fendleri*

**Common name:** Fendler's spring-parsley.[43]
**Color:** flower petals are yellow or purple and sometimes white .[4]
**Habitat:** perennial.[3]
**Leaves:** leafs are toothed or lobed.[2]
**Fruit:** 6-10 mm long and oblong (egg) shaped.[2]
**Flowers:** The plant is between 3-12 cm tall.[2]

**Comments:** This species is generally found on the plains.[43]

**Medical/Culinary Application**: No application.

*Cymopterus lemmonii*

**Common name:** Mountain Parsley.[62]
**Color:** golden yellow flower.[62]
**Habitat:** perennial.[62]
**Leaves:** The leaves are small and thin. The leaflets have a smooth edge.[67]
**Fruit:** 3-5 mm long.[4]
**Flowers:** umbel that is round and flat topped.[67]

**Comments:** Found in wooded areas.[4]

**Medical/Culinary Application**: No application.

***Heracleum***

**Common name:** Cow Parsnip.[45]
**Color:** white flower.[2]
**Habitat:** perennial or biennial. [45]
**Leaves:** large and compound, small calyx teeth.[2]
**Fruit:** ovate shaped fruit.[2]
**Flowers:** large umbels.[2]

**Comments:** Commonly found in the high mountains.[45]

**Medical/Culinary Application**: The Iroquois tribe chewed the leaf to make men like a particular woman.[29] The Nootka tribe used the plant as a cough medicine and diuretic.[48] No culinary application was found.

**Key:**

Wet ground of marshes, streamsides, and pond edges in the northern mountians[4]**….** ***H. maximum***

***Heracleum maximum***

**Common name:** Indian celery.[46]
**Color:** white flowers.[47]
**Habitat:** perennial.[46]
**Leaves:** The leaves are lobed and compound. Succulent and stout (fat/heavy built) stem.[46]
**Fruit:** Hallowed stem; the fruit length is between 5–12 mm.[47]
**Flowers:** Umbels are flat topped and rounded. Gets around 2 meters tall.[46]

**Comments:** Found in river banks and meadows.[47]

**Medical/Culinary Application**: The Aleut tribe used the plant in tonic water to help cure a cold and sore throat, and they heated the leaves to relieve sore muscles.[49] The Bella tribe mixed the plant with other substances to rub on hip and lung pains.[50] The Cahippewa tribe put the boiled root on boils and gargled the root to soothe a sore throat.[51] The Fox tribe used the seeds to help with headaches, used the stem to help stomach cramps, and applied the stem to heal wounds.[52] The Gitksan tribe uses the mashed root to soothe boils and reduce swelling.[50] The Iroquois tribe used the stems in steam baths which helped reduce headaches. This tribe put the roots on bruises on the stomach and used the roots to wash rifles.[29] The Kwakiutl tribe used the dried roots as an oil on hair and the

face of girls going through puberty.[53] The Omaha tribe used the root for intestinal pains.[54] The Paiute tribe used the roots to help with a cold, a sore, and a wound.[20] The Pomo tribe used the plant as a wash to clean swollen areas.[55] The Sanpoil tribe used the root in the hair wash to eliminate dandruff and placed to root over eyes to minimize painful and sore eyes.[56] The Shoshone tribe used the root in whisky to help a cold, gargled the root to help a sore throat, and placed the root to reduce the pain of cavities.[20] The Shuswap tribe ate the roots to relieve sores on the bladder and kill internal germs.[57] The Sikani tribe applied the smashed roots on swollen areas of the body.[50] The Tainarna tribe used the root as medicine and gave it to people in a tonic water.[51] The Thompson tribe used the root as a soap to purify unclean things.[51] The Washoe tribe ate the root to stop diarrhea and placed the root on cavities to stop toothaches.[20] The Winnebago tribe used the plants top in a smoke treatment trying to help prevent fainting.[54]

***Ligusticum***

**Common name:** Wild Lovage.[4]
**Color:** white or pink flowers.[2]
**Habitat:** perennial.[2]
**Leaves:** Leaflets are oval shaped and toothed.[2] No calyx teeth.[2]
**Fruit:** oval shaped.[2]
**Flowers:** compound umbels.[2]

**Comments:** Found in Taos, San Miguel, Santa Fe, and Rio Arriba.[3]

**Medical/Culinary Application**: The Paiute tribe used the root as a cough medicine.[20] The Yuki tribe used the root to deter rattlesnakes.[59]

**Key:**

Damp woods in nearly all the mountainous regions [4]**…** ***L. porteri***

***Ligusticum porteri***

**Common name:** Osha and Porter's lovage.[62]
**Color:** white flowers.[62]
**Habitat:** perennial.[62]
**Leaves:** leaves are between 15-30 cm long, toothed.[2]
**Fruit:** 6-7 mm long and oval shaped fruit.[2]
**Flowers:** Stem is between 60-80 cm tall.[2]

**Comments:** Flowers between June and August.[2]

**Medical/Culinary Application**: No application.

***Lomatium***

**Common name:** Bisquit-root.[2]
**Color:** Yellow, white, or purple flowers.[2]
**Habitat:** perennial.[2]
**Leaves:** pinnate and ternate.[2]
**Fruit:** dorsally compressed fruit.[2]
**Flowers:** compound umbels.[2]

**Comments:** Found in Rio Arriba.[3]

**Medical/Culinary Application**: The Gosiute tribe used the roots to help cure severe colds. The tribe also applied the roots to cuts, bruises, and infections. They smashed the root and applied it to the throats for a sore throat.[60] The Omaha, Pawnee, Ponca, and Winnebago tribes men used the seeds as a love charm.[54]

**Key:**

Fruit glabrous; bractlets of the involucel distinct[2]**…** ***L. orientale***

*Lomatium orientale*

**Common name:** Northern Idaho Biscuitroot.[69]
**Color:** White flowers.[2]
**Habitat:** perennial.[69]
**Leaves:** Leaves grow between 5-11 cm long and are oval shaped. Leaflets have a toothed edge.[2]
**Fruit:** Grows between 5-10 cm long and is egg shaped.[2]
**Flowers:** Plant grows between 10-40 cm tall.[2]

**Comments:** Flowering period is in dry plains sometime between April and June.[2]

**Medical/Culinary Application**: The Cheyenne tribe makes a combination using the root and leaf. This combination helps decrease bowel pain and diarrhea.[68]

***Oxypolis***

**Common name:** Cowbane.[2]
**Color:** white or purple flowers.[2]
**Habitat:** Perennial.[2]
**Leaves:** Leaflets are toothed, but there are not many. Calyx teeth are prominent.[2]
**Fruit:** Oblong shaped.[2]
**Flowers:** compound umbels.[2]

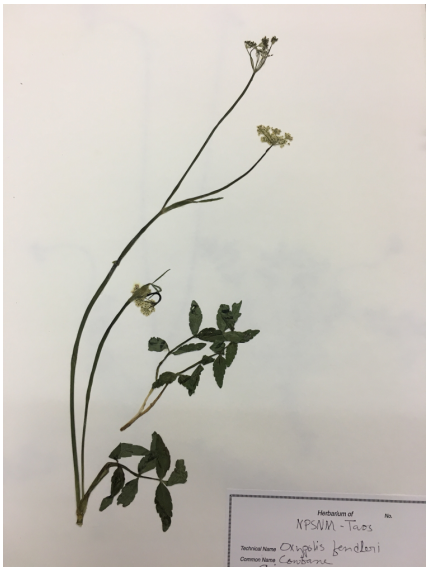
**Comments:** none.

**Medical/Culinary Application**: No application.

**Key:**

Widespread in the state in damp meadows, marshes, and streamsides in the mountains**….*O. fendleri***

*Oxypolis fendleri*




**Common name:** Fendler cowbane.[2]
**Color:** Small white flowers.
**Habitat:** pinnate.[2]
**Leaves:** Around 5-9 oval shaped leaflets. Pedicels are 4-8 mm long.[2]
**Fruit:** Oval shaped fruit that is 3-4 mm long.[2]
**Flowers:** Grows between 30-60 cm tall.[2]

**Comments:** Flowering season is in wet areas between June and August.[2]

**Medical/Culinary Application**: No application.

*Osmorhiza*

**Common name:** Sweet Cicely.[2]
**Color:** White, purple, or green/yellow flowers.[2]
**Habitat:** Perennial.[2]
**Leaves:** leaflets are toothed or lobed.[2]
**Fruit:** oval shaped fruit.[2]
**Flowers:** compound umbels, sepals are not used, distinctive scented root.[2]

**Comments:** None.

**Medical/Culinary Application**: The Bella tribe used the root for pneumonia.[76] The Iroquios tribe used an infusion of the roots to help minimize fevers, headaches, and diarrhea. They also ate the powdered roots as a blood purifier, used the root in traps to attract animals, and chewed the roots and an anti-love medicine.[29] The Paiute tribe uses the root for stomach pains, colds, fevers, sore throats, and pneumonia. They put the root on skin rashes, cuts, sores, snakebites, and bruises. The root is commonly used as a wash for the eyes and venereal sores.[20] The Shoshone tribe eats the root for stomach pains, headaches, diarrhea, colds, coughs, and fevers. They also applied the root on, snakebites and toothaches. The tribe used the root as a wash for hair to remove lice and

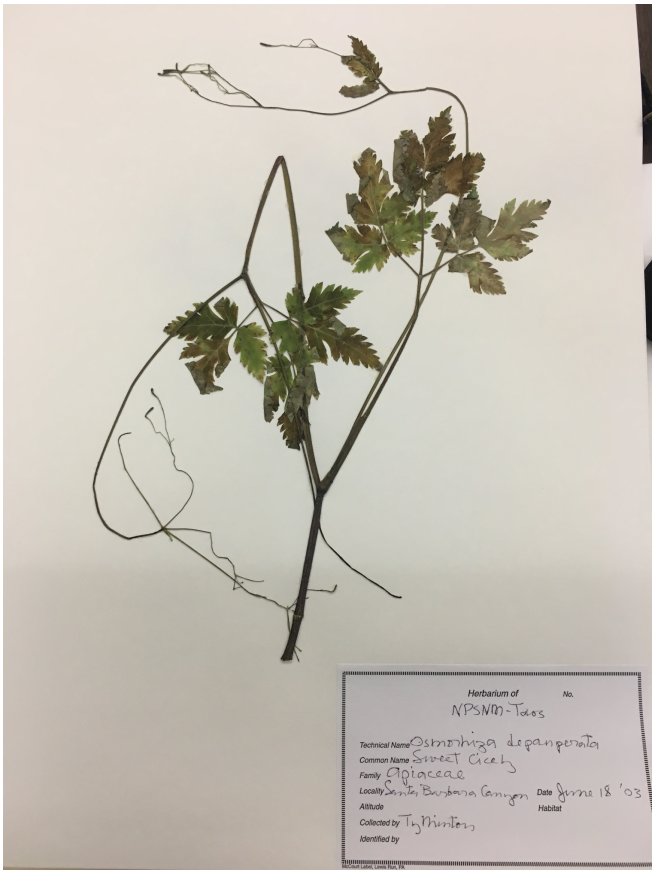
measles.[20] The Washoe tribe used the roots for pneumonia, stomachaches, colds, and influenza.[20]

**Key:**

Rays and pedicels divaricated-spreading; fruit club-shaped, widest near the apex**…*O. depauperata***

Involucres present at the base of the umbel, the bracts well developed, green, hairy; styles 2-3 mm long**…. *O. longistylis***

*Osmorhiza depauperata*




**Common name:** Bluntseed sweet cicely.[2]
**Color:** Flowers are green/white.[2]
**Habitat:** Perennial
**Leaves:** leaflets are 2-5 cm long.[2]
**Fruit:** 10-15 mm long.[2]
**Flowers:** Stems are 15-60 cm tall. Pedicels are around 10-30 mm long. Flowers have tiny style.[2]

**Comments:** Flowers between May and October.[2]

**Medical/Culinary Application**: No application found.

*Osmorhiza longistylis*

**Common name:** Sweet Cicely.[75]
**Color:** Flowers white.[2]
**Habitat:** perennial.[75]
**Leaves:** Leaflets are between 3-10 cm long, oval shaped, and lanceolate.[2]
**Fruit:** oval shaped 12-20 mm long.[2]
**Flowers:** Stem is 1 m tall. Pedicel is around 5-8 mm long. Style is 2-3 mm long.[2]

**Comments:** Plant flowers in the damp woods, the season is between May and June.[2]

**Medical/Culinary Application**: The Cheyenne tribe used the leaves, stems, and roots to help with stomach bloating and kidneys that do not function.[54] The Fox tribe used the plant as the medicine to cure anything. They especially used the plant to calm down horses.[52]

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